NOVEMBER/DECEMBER 2024

23USEL13 — ELECTRONIC COMMUNICATION SYSTEMS (SEC)

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define modulation.
2. What do you mean radiation pattern?
3. State secant law.
4. Define critical frequency.
5. Mention the elements of analog communication.
6. Define modulation index
7. Define modulation.
8. What is frequency modulation?
9. What is sampling process?
10. Define sampling theorem.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain in detail about the helical antenna.

Or

(b) Sketch a helical antenna, and briefly explain its operation in the axial mode, in what very important way does this antenna differ from the other antennas studied.

12. (a) Describe the layer of ionosphere and its effects.

Or

(b) Describe the ground-wave propagation. What is the angle of tilt'? How does it affect field strength at a distance from the transmitter?

13. (a) Explain: AM radio transmitter.

Or

(b) Explain: Super heterodyne receiver.

14. (a) Describe the FM transmitter.

Or

(b) Explain the FM receiver.

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15. (a) Explain the measurement of AC frequency by Melde's string.

Or

(b) Describe the generation of PWM signal.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the Yagi Uda antenna.

17. Briefly describe the following terms connected with Sky wave propagation; virtual height, critical frequency, maximum usable frequency, skip distance and fading.

18. Describe the frequency spectrum of the AM wave.

19. Derive the equation of frequency modulated wave.

20. Describe the generation of PAM signal.

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